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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/510,145	04/19/2005	Mats Sundberg	1734	8647

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EXAMINER	
RALIS, STEPHEN J	
ART UNIT	PAPER NUMBER
3742	
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05/27/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/510,145	SUNDBERG ET AL.	
	Examiner	Art Unit	
	STEPHEN J. RALIS	3742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 March 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-6 and 8-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-6 and 8-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 October 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Applicant is respectfully requested to provide a location within the disclosure to support any further amendments to the claims due to when filing an amendment an applicant should show support in the original disclosure for new or amended claims. See MPEP § 714.02 and § 2163.06 ("Applicant should specifically point out the support for any amendments made to the disclosure.").

Response to Amendment/Arguments

3. Applicant's arguments, see pages 12-13, filed 02 March 2009, with respect to claims 6, 8 and 9 have been fully considered and are persuasive. The 35 U.S.C. 102(b) rejection of claims 6, 8 and 9 has been withdrawn.

4. Applicant's arguments filed 02 March 2009 have been fully considered but they are not persuasive as set forth below.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1, 2, 4-6 and 8-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation " $Mo(Si_{1-y} Al_y)_2$ " in line 4. Since "y" is undefined, the $Mo(Si_{1-y} Al_y)_2$ formula recited in claim 1 is deemed indefinite.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 1, 4-6, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schrewelius (U.S. Patent No. 2,955,145) in view of Schrewelius (U.S. Patent No. 2,992,959) and in further view of Sekhar et al. (U.S. Patent No. 5,420,399).

Schrewelius'145 discloses a powdered molybdenum-silicide based heating element and method of producing (column 2, lines 3-54) containing essentially of molybdenum silicide (column 1, lines 59-72; column 2, lines 1-2, 31-35) and alloys of that material, said method comprising the steps of: providing powdered molybdenum aluminosilicide material $Mo(Si_{1-y}\ Al_y)_2$ (column 1, lines 59-72; column 2, lines 1-2, 31-35); mixing the powdered molybdenum aluminosilicide with SiO_2 to provide a heating element material mixture (column 2, lines 14-20; column 2, lines 31-36; NOTE: when y=0; column 1, lines 71-72), and forming a heating element from the heating element material mixture (column 2, lines 14-70). While Schrewelius'145 is silent to the production of Al_2O_3 in addition to the $Mo(Si_{1-x}\ Al_x)_2$, the examiner notes that $Mo(Si_{1-x}\ Al_x)_2$, when combined with SiO_2 and sintered, produces an Al_2O_3 product as will be shown by Schrewelius'959.

With respect to the further limitations of claims 1, 4-6, 8 and 9, Schrewelius'145 further discloses wherein x lies in the range of 0.4 - 0.6; wherein x lies in the range of 0.45 - 0.55 (i.e. 0.2 – 0.6; column 1, line 69; column 4, claims 1, 3); including the step of partially substituting Re or W in the material $Mo(Si_{1-x}\ Al_x)_2$ for molybdenum (i.e. W or tungsten; column 1, lines 59-72; column 2, lines 1-2; column 4, claims 1, 3).

Schrewelius'145 discloses a molybdenum-silicide heating element and method of producing except for the product being formed by the method also consisting essentially of (i.e. comprising) Al_2O_3; and the SiO_2 being at least 98% pure and the heating element material being free of bentonite; and the oxide layer not peeling under thermal cycling at about 1500ºC, whereby heating oven contamination in the form of peeled heating element oxide layer particles in a heating oven containing the heating element *is prevented*.

However, sintering the formed element with the heating element including on its surface an oxide layer consisting of essentially of Al_2O_3 is known in the art. Schrewelius'959, for example, teaches a method of producing a molybdenum-silicide-type heating element in which a Al_2O_3 product is formed via the chemical reaction to form a ceramic glass component that efficiently stops the grain growth of the silicide at high temperatures (column 5, lines 69-75; column 6, lines 1-7); and the oxide layer not peeling under thermal cycling at about 1500ºC (material of type III can withstand a temperature of 1650ºC for more than 1000 hours;: column 5, lines 11-17; a material able to withstand an operating temperature of 1650ºC does not deteriorate or peel over time; column 7, lines 45-50), protecting against further oxidation (column 8, claim 2), thereby increasing the operational life of said heating element.

NOTE: With respect to the limitation of "the heating element *substantially contains* $Mo(Si_{1-x}\ Al_x)_2$ and Al_2O_3… the heating element includes on its surface an oxide layer *consisting of essentially* of Al_2O_3",.the term "substantially" is often used in conjunction with another term to describe a particular characteristic of the claimed

invention. It is a broad term. (See MPEP 2173.05). In addition, the term "consisting essentially of' claim occupies a middle ground between closed claims that are written in a consisting of' format and fully open claims that are drafted in a comprising' format." PPG Industries v. Guardian Industries, 156 F.3d 1351, 1354, 48 USPQ2d 1351, 1353-54 (Fed. Cir. 1998). For the purposes of searching for and applying prior art under 35 U.S.C. 102 and 103, absent a clear indication in the specification or claims of what the basic and novel characteristics actually are, "consisting essentially of" will be construed as equivalent to "comprising." (See, e.g., PPG, 156 F.3d at 1355, 48 USPQ2d at 1355) (see MPEP 2111.03). In the instant case, applicant discloses "the present invention thus relates to a method of producing a heating element substantially of the molybdenum silicide type and alloys of this basic material, and is characterized by producing a material that *substantially contains* $Mo(Si_{1-x}\ Al_x)_2$ and Al_2O_3 by mixing a molybdenum aluminosilicide $Mo(Si_{1-y}\ Al_y)_2$ with SiO_2 wherein SiO_2 has a purity of at least 98% (see paragraph 17). Therefore, the terminology "substantially contains" is an open end disclosure to the composition of the heating element, therefore, the claims are interpreted and disclosed by the specification with "consisting essentially of" as being equivalent to "comprising."

Similarly, providing a heating material mixture with SiO_2 being at least 98% pure and such a mixture being free of bentonite is known in the art. Sekhar et al., for example, teach a method of producing a heating element mixture utilizing pure SiO_2 to reduce the impurities in the resulting heating element, increasing the working temperature of the heating element (column 16, lines 12-20), thereby producing a more

efficient heating element. Sekhar further teaches the working temperature of the heating elements was increased in comparison to products using bentonite as a plasticizer, due to reduction of the impurity phase (column 16, lines 21-29).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the molybdenum-silicide-type heating element and method of producing of Schrewelius'145 with the teaching of the production of Al_2O_3 in addition to the $Mo(Si_{1-x}\ Al_x)_2$ of Schrewelius'959 to form a ceramic glass component that efficiently stops the grain growth of the silicide at high temperatures, protecting against further oxidation (column 8, claim 2), thereby increasing the operational life of said heating element. It would have further been obvious to one of ordinary skill in the art at the time of the invention was made to modify the Schrewelius'145-Schrewelius'959 molybdenum-silicide-type heating element and method of producing combination with the teaching of replacing bentonite with pure SiO_2 of Sekhar et al. to reduce the impurities in the resulting heating element, increasing the working temperature of the heating element, thereby producing a more efficient heating element thereof.

With respect to the limitation of the oxide layer not peeling from the surface of the heating element between room temperature and about 1500ºC whereby heating oven contamination in the form of peeled heating element oxide layer particles in a heating oven containing the heating element is prevented, Schrewelius'145 discloses the use of the alloys according to the invention in a temperature of 1600 to 1700ºC (column 2, lines 28-30). Schrewelius'959 teaches a material of type III comprising Al_2O_3 that can withstand a temperature of 1650ºC for more than 1000 hours (column 5, lines 11-17;

column 6, lines 3-11) and a material able to withstand an operating temperature of 1650ºC does not deteriorate or peel over time (column 7, lines 45-50). Sekhar teaches electrical heating element compositions and the comparison between using pure SiO_2 instead of bentonite (column 16, lines 11-29) to reduce the impurities in the resulting heating element, increasing the working temperature of the heating element. Sekhar further teaches the heating elements being tested at temperatures between 1200 ºC and 1600 ºC without any sign of deterioration (column 14, lines 28-40) with deterioration inherently including physical wear/break down of the composition of the heating element which would include peeling. Therefore since Schrewelius'145 discloses the use of the heating element device at device at 1600 to 1700ºC, Schrewelius'959 teaches a material of type III comprising Al_2O_3 that can withstand a temperature of 1650ºC for more than 1000 hours, and Sekhar teaches the replacement of a bentonite plasticizer with a pure SiO_2 plasticizer to remove impurities and prevent any sign of deterioration of the heating element at high operating temperatures, Schrewelius'145 in view of Schrewelius'959 and Sekhar fully meets "which oxide layer does not peel from the surface of the heating element under thermal cycling of the heating element between room temperature and about 1500°C, whereby heating oven contamination in the form of peeled heating element oxide layer particles in a heating oven containing the heating element is prevented" given its broadest reasonable interpretation.

Furthermore, although Schrewelius'145 in view of Schrewelius'959 and Sekhar disclose the improved structure and method of making, the reasons for combining are not exactly the same as applicants. However, if a composition is physically the same, it

must have the same properties. A chemical composition and its properties are inseparable. Therefore, where the prior art teaches the same chemical composition, the properties of instant claims are necessarily present.

11. Claims 2 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schrewelius (U.S. Patent No. 2,955,145) in view of Schrewelius (U.S. Patent No. 2,992,959) and Sekhar et al. (U.S. Patent No. 5,420,399) as applied to claims 1, 4-6, 8 and 9 above, and further in view of Chyung et al. (U.S. Patent No. 3,725,091).

The Schrewelius'145-Schrewelius'959-Sekhar molybdenum-silicide heating element and method of producing combination discloses all of the limitations, as previously set forth, except for wherein the SiO_2 being present in the mixture is a silicate and does not affect symmetry of molybdenum silicide crystal lattice; and wherein the silicate is mullite.

Chyung et al. a method for producing a heating element (column 1, lines 9-14; column 2, lines 10-16) wherein the SiO_2 is present in the mixture (column 3, lines 12-17) is a silicate mullite (i.e. mullite; $3Al_2O_3$ $2SiO_2$ inherently has SiO_2; is used; i.e. high temperature applications; column 48-52) and does not affect symmetry of molybdenum silicide crystal lattice (column 2, lines 65-68; column 3, lines 1-7, lines 57-64; column 10-11, claim 9) to provide an improved cermet material of high density, low porosity, good thermal conductivity, low electrical resistivity and good strength which is compatible with both metals and ceramics in terms of thermal expansion and bonding capability, thereby producing a more efficient heating element. It would have been

obvious to one of ordinary skill in the art at the time of the invention was made to modify the Schrewelius'145-Schrewelius'959-Sekhar molybdenum-silicide heating element and method of producing combination with the mixture and teaching of the use thereof of Chyung et al. to provide an improved cermet material of high density, low porosity, good thermal conductivity, low electrical resistivity and good strength which is compatible with both metals and ceramics in terms of thermal expansion and bonding capability, thereby producing a more efficient heating element.

12. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schrewelius (U.S. Patent No. 2,955,145) in view of Schrewelius (U.S. Patent No. 2,992,959), Sekhar et al. (U.S. Patent No. 5,420,399) and Chyung et al. (U.S. Patent No. 3,725,091) as applied to claims 2 and 10 above, and further in view of Sawamura et al. (U.S. Patent No. 5,756,215).

The Schrewelius'145-Schrewelius'959-Sekhar-Chyung molybdenum-silicide heating element and method of producing combination discloses all of the limitations, as previously set forth, except for the silicate being sillimanite instead of mullite.

Sawamura teaches that sillimanite is an equivalent structure known in the art (metal oxide comprising at least one of mullite or sillimanite; column 12, lines 40-45). Therefore because these two silicates were art-recognized equivalents at the time of the invention was made, one of ordinary skill in the art would have found it obvious to substitute sillimanite for mullite.

Remarks

13. With respect to applicants' reply/argument that Schrewelius'145 is directed to a thermocouple alloy, not to an electrical heating element, the examiner respectfully disagrees. Although Schrewelius'145 does disclose the thermo-electric alloys being used for thermocouples, Schrewelius'145 further discloses the alloy of the invention "may also advantageously be used as heating resistors for producing high temperatures" (column 2, lines 14-17). Therefore, Schrewelius'145 fully meets "forming a heating element…" given its broadest reasonable interpretation.

14. With respect to applicant's argument that Schrewelius'145 teaches away from using pure SiO_2, the examiner respectfully disagrees. Schrewelius'145 discloses a ceramic binding substance, predominantly being SiO_2 (column 2, lines 31-40) with bentonite being used as the binding substance (column 2, line71 - column 3, line 15). There is no disclosure or teaching to the ceramic binding substance not potentially being pure SiO_2 or such a substitution causing detrimental effects to the heating element composition, only to it being preferred to be predominantly SiO_2 with two parts bentonite. Furthermore, the reference to Sekhar et al. is cited for a teaching, suggestion and motivation for using pure SiO_2

15. With respect to applicant's reply/argument that "the examiner specifically admitted that the Schrewelius '145 reference does not disclose: ...the product being formed by the method also consisting essentially of (i.e. comprising) AI203; and the SiO2 being at least 98% pure and the heating element being free of bentonite; and the oxide layer not peeling under thermal cycling at about 1500°C, whereby heating oven

contamination in the form of peeled heating element oxide layer particles in a heating oven containing the heating element is prevented. (emphasis in original) *By virtue of that unambiguous admission by the examiner,* claims 6, 8, and 9 are clearly not anticipated by the Schrewelius '145 reference, and they also are not obvious thereover because of the several significant admitted differences between the invention as claimed in those claims and the disclosure contained in the Schrewelius '145 reference.", the examiner respectfully disagrees.

The examiner has provided applicant with a separate 35 U.S.C. 102(b) and separate 35 U.S.C. 103(a) rejection for claims 6, 8 and 9. In no way shape or form are separate rejections an admission by the examiner that the claims are not anticipated or obvious thereover Schrewelius'145, only an admission to separate rejections in light of the prior art of record. An argument to the fact that one rejection negates or overcomes a previous rejection is not deemed persuasive due to no evidenced being provided by applicant to such an argument. Therefore, the rejection of claims 6, 8 and 9 under 35 U.S.C. 102(b) as being anticipated over Schrewelius'145 or, in the alternative, under 35 U.S.C. 103(a) as obvious over Schrewelius'145 is maintained.

16. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

17. With respect to applicant's argument that Schrewelius'145 teaches away from using pure SiO2, the examiner respectfully disagrees. Schrewelius'145 discloses a ceramic binding substance, predominantly being SiO2 (column 2, lines 31-40) with bentonite being used as the binding substance (column 2, line71 - column 3, line 15). There is no disclosure or teaching to the ceramic binding substance not potentially being pure SiO2 or such a substitution causing detrimental effects to the heating element composition, only to it being preferred to be predominantly SiO2 or bentonite. Furthermore, the reference to Sekhar et al. is cited for a teaching, suggestion and motivation for using pure SiO2

Sekhar et al. teach a method of producing a heating element utilizing pure SiO_2 to reduce the impurities in the resulting heating element, increasing the working temperature of the heating element (column 16, lines 12-20), thereby producing a more efficient heating element. Sekhar further teaches the working temperature of the heating elements was increased in comparison to products using bentonite as a plasticizer, due to reduction of the impurity phase (column 16, lines 21-29). Therefore, the examiner maintains that Sekhar teaches the replacement of bentonite with pure SiO_2 as a plasticizer/additive and motivation, teaching and suggestion to do so.

18. With respect to applicants reply/argument that none of the references relied upon discloses or suggests an Al_2O_3 outer surface layer, nor do any of the references even mention or appreciate the problem to which the present invention is directed - the peeling of a surface layer of Al_2O_3 upon subjection to thermal cycling of a heating element having such a surface layer", the examiner respectfully disagrees. While

Schrewelius'959 does disclose the layer being a quartz glass or SiO_2 layer, Schrewelius'959 also disclose that during the final sintering process/operation, silica or mixed oxides are formed which fill up the remaining pores and form a surface film of SiO_2 (column 2, lines 28-32; column 4, lines 34-38). Schrewelius'959 further disclose the ceramic glass component being a product of Al_2O_3 and SiO_2 (see composition III; column 5, lines 11-25; column 6, lines 3-7), and with the previous mentioned disclosure, would inherently provide particles of Al_2O_3 to fill the pores of SiO_2. Furthermore, Schrewelius'959 discloses that a material of type III can withstand a temperature of 1650ºC for more than 1000 hours (material III: column 5, lines 11-17) and a material able to withstand an operating temperature of 1650ºC inherently does not deteriorate or peel over time (column 7, lines 45-50) or the structure would not be operating as disclosed. Furthermore, Sekhar teaches electrical heating element compositions and the comparison between using pure SiO_2 instead of bentonite (column 16, lines 11-29) to reduce the impurities in the resulting heating element, increasing the working temperature of the heating element. Sekhar further teaches the heating elements being tested at temperatures between 1200 ºC and 1600 ºC without any sign of deterioration (column 14, lines 28-40) with deterioration inherently including physical wear/break down of the composition of the heating element which would include peeling. Therefore since Schrewelius'145 discloses the use of the heating element device at device at 1600 to 1700ºC, Schrewelius'959 teaches a material of type III comprising Al_2O_3 that can withstand a temperature of 1650ºC for more than 1000 hours, and Sekhar teaches the replacement of a bentonite plasticizer with a pure SiO_2 plasticizer to remove

impurities and prevent any sign of deterioration of the heating element at high operating temperatures, Schrewelius'145 in view of Schrewelius'959 and Sekhar fully meets "which oxide layer does not peel from the surface of the heating element under thermal cycling of the heating element between room temperature and about 1500°C, whereby heating oven contamination in the form of peeled heating element oxide layer particles in a heating oven containing the heating element is prevented" given its broadest reasonable interpretation.

Furthermore, although Schrewelius'145 in view of Schrewelius'959 and Sekhar disclose the improved structure and method of making, the reasons for combining are not exactly the same as applicants. However, if a composition is physically the same, it must have the same properties. A chemical composition and its properties are inseparable. Therefore, where the prior art teaches the same chemical composition, the properties of instant claims are necessarily present.

19. With respect to applicant's reply/argument that the term "consisting essentially of Al_2O_3 cannot be construed as equivalent to "comprising", the examiner respectfully disagrees. Applicant discloses "the oxide phase contains Al_2O_3 in all essentials (that is a "basic necessity") (instant application; paragraph 14). Applicant further discloses "the oxide that forms on the surface of the element, namely Al_2O_3,…" (instant application; paragraph 14). The examiner can find no disclosure in the instant application of the oxide layer being *only* Al_2O_3, only disclosure to the Al_2O_3 being a "basic necessity". Therefore, the examiner maintains that the oxide layer "consisting essentially of" Al_2O_3

may be construed as an opened ended claim recitation, as set forth previous, and furthermore maintains the rejection as set forth above and previously.

20. In response to applicant's argument that Sekhar et al. is directed to a different problem, that of providing oxidation resistance, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

21. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, all the references teach a teaching, suggestion and motivation to combine. Schrewelius'959 teaches, suggests and motivates one of ordinary skill in the art to form a ceramic glass component comprising Al_2O_3 and SiO_2 that efficiently stops the grain growth of the silicide at high temperatures, protecting against further oxidation (column 8, claim 2), thereby increasing the operational life of said heating element. In addition, Sekhar et al. teaches, suggests and motivates one of ordinary skill in the art to reduce the impurities in the resulting heating element by using pure SiO_2 instead of bentonite to increase the

working temperature of the heating element, thereby producing a more efficient heating element. Therefore, the examiner maintains the 35 U.S.C. 103(a) as asserted above.

22. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

23. The Declaration under 37 CFR 1.132 filed 02 March 2009 is insufficient to overcome the rejection of claims 1, 2, 4-6 and 8-11 based upon 35 U.S.C. 103(a) as set forth in the last Office action because: In view of the foregoing, when all of the evidence is considered, the totality of the rebuttal evidence of nonobviousness fails to outweigh the evidence of obviousness. The Declaration provides evidence to the invention (i.e. usage of 98% pure SiO_2 instead of bentonite). However, the evidence further provides support for the examiner's position that if a composition is physically the same, it must have the same properties. A chemical composition and its properties are inseparable. Therefore, where the prior art teaches the same chemical composition, the properties of instant claims are necessarily present.

Conclusion

24. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEPHEN J. RALIS whose telephone number is (571)272-6227. The examiner can normally be reached on Monday - Friday, 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tu Hoang can be reached on 571-272-4780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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